

What is claimed is:

1. A method of making a catalytic combustor, comprising:

a) providing at least one flat strip of metal, and at least one corrugated strip of metal, and arranging each flat strip adjacent to a corrugated strip,

b) welding said at least one flat strip to said at least one corrugated strip, by using a welding device having a vertical dimension,

wherein the corrugations are selected such that the combustor has a cell density of at least about 300 cells per square inch, and wherein the corrugations are selected to have an aspect ratio large enough to provide clearance for the vertical dimension of the welding device.

2. The method of Claim 1, wherein the aspect ratio is selected to be greater than about 0.75.

3. The method of Claim 1, wherein the aspect ratio is selected to be greater than about 1.0.

4. The method of Claim 1, wherein the welding device is selected to be a tweezer welder.

5. A method of making a catalytic combustor, comprising:

a) providing a plurality of flat metal strips and a plurality of corrugated metal strips,

b) forming pairs of flat and corrugated strips, and welding each flat strip of said pairs to each corrugated strip of said pair, wherein the flat strip of each pair is offset relative to the corrugated strip of each pair before welding,

c) arranging the pairs made according to step (b) in a stack, and

d) welding said pairs to each other to form a unitary structure.

6. The method of Claim 5, wherein step (c) comprises arranging

alternate pairs such that the flat strip of each such pair is offset in a first direction, and arranging remaining pairs such that the corrugated strip of each such pair is offset in said first direction, wherein an effective vertical clearance at ends of the stack is substantially twice a corrugation height of a single corrugated strip.

7. A catalytic combustor formed of a plurality of flat strips and corrugated strips, the combustor comprising a plurality of pairs of flat and corrugated strips, the flat and corrugated strips of each pair being welded together, wherein the flat strip of each pair is offset relative to the corrugated strip of each pair, wherein said pairs are arranged in a stack such that alternate pairs have a flat strip offset in a first direction, and remaining pairs have a corrugated strip offset in said first direction, wherein said pairs are welded together to form a unitary structure.

8. The combustor of Claim 7, wherein a flat strip of each pair is welded to a corrugated strip of an adjacent pair.

9. A method of making a catalytic combustor, comprising:

a) providing a plurality of flat strips, a plurality of corrugated strips having low-amplitude corrugations, and a plurality of corrugated strips having high-amplitude corrugations, wherein all of the corrugated strips have a corrugation pitch which is substantially the same,

b) arranging the strips in a stack such that pairs of flat strips are separated by a high-amplitude corrugated strip, and such that there is at least one low-amplitude corrugated strip between said pairs of flat strips, and such that the low-amplitude corrugated strips are recessed from ends of the remaining strips, and

c) welding the flat strips to the high-amplitude corrugated strips, the welding being done in a vicinity of the ends of the stack.

10. A catalytic combustor comprising a plurality of flat strips, a plurality of high-amplitude corrugated strips, and a plurality of low-amplitude corrugated strips, wherein the flat strips are arranged in a stack such that the flat strips alternate with high-amplitude corrugated strips, and wherein a space between the flat strips also contains at least one low-amplitude corrugated strip, wherein the low-amplitude corrugated strip is recessed relative to ends of the flat strips, and wherein the flat strips and the high-amplitude corrugated strips are welded together at ends of the flat strips.

11. A method of making a catalytic combustor, comprising:

- a) assembling a plurality of metal strips into a stack, wherein some of the strips are flat and some are corrugated, wherein the stack has end faces,
- b) displacing some of the strips relative to others of the strips, such that some of the strips do not terminate at the end faces, and
- c) welding the strips together to form a unitary structure.

12. The method of Claim 11, wherein step (a) comprises arranging the flat strips to alternate with the corrugated strips, and wherein step (b) comprises alternately displacing a flat strip and a corrugated strip.

13. The method of Claim 11, wherein some of the corrugated strips have low-amplitude corrugations and some of the corrugated strips have high-amplitude corrugations, and wherein step (b) includes displacing the low-amplitude corrugated strips such that the low-amplitude corrugated strips do not terminate at the end faces.

14. A catalytic combustor comprising a plurality of metal strips assembled into a stack, wherein some of the strips are flat and some are corrugated, wherein the stack has end faces, wherein some of the strips

are displaced relative to others of the strips, such that some of the strips do not terminate at the end faces, wherein the strips are welded together to form a unitary structure.

15. The catalytic combustor of Claim 14, wherein the flat strips alternate with the corrugated strips in the stack, and wherein flat strips and corrugated strips are alternately displaced in the stack.

16. The catalytic combustor of Claim 14, wherein some of the corrugated strips have low-amplitude corrugations and some of the corrugated strips have high-amplitude corrugations, and wherein the low-amplitude corrugated strips are displaced such that the low-amplitude corrugated strips do not terminate at the end faces.